



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/542,862

01/11/2006

Andrew John Cook

021500-138

8659

21839 7590 06/25/2008
BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER

LANGMAN, JONATHAN C

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

06/25/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

| | | | |
|------------------------------|--|------------------------------------|--|
| Office Action Summary | Application No. 10/542,862 | Applicant(s) COOK ET AL. | |
| | Examiner JONATHAN C. LANGMAN | Art Unit 1794 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/21/2005 and 1/11/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: The applicant states on page 3, last paragraph "The inventors were surprised to discover that by using lead-free solder-including lead free solder having a **relatively high tin content**-having one or more specific chemical elements incorporated (herein referred to as stress modifiers), the occurrence of stress faults..."(Emphasis added). The entire specification is to lead free **low** tin content. Is there a typographical error in the specification, or does the applicant mean to include high tin content lead free glasses with the invention.

Appropriate clarification/correction is required.

Claim Rejections - 35 USC § 112/101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 provides for the use of a lead free solder, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 11 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 8-13, and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Pereira (US 6,253,988).

Regarding claims 1-3, 8-12, and 17-19 Pereira teaches that “Windshields and rear windows of vehicles such as automobiles often include electrical devices located within or on the glass. Typically, the electrical devices are antennas or defrosters. In order to provide an electrical connection to such an electrical device, a small area of

Art Unit: 1794

metallic coating is applied to the glass which is electrically connected to the electrical device. An electrical connector for connecting to a lead or the lead itself is then soldered to the metallic coating on the glass.” (col. 1, lines 10-18). Pereira then teaches a lead free solder (col. 3, lines 17) in order to reduce damage to the glass, such as a solder that prevent cracks (col. 1, line 30) and col. 3, lines 3-10). The solder comprises a composition of tin in an amount of less than 50%, and indium in an amount of more than 50 weight percent is indium (col. 1, lines 35-40 and col. 2, lines 50-65). Indium is a stress modifier as defined by the applicant. The inhibited cracks as taught by Pereira et al. read upon the applicants instantly claimed stress fault in the pane of the glass in the region of the solder.

Regarding claims 4 and 13, it is expected and inherent that since the vehicular glazing panel of Pereira et al. is the same as the instantly claimed vehicular glazing panel, that it will exhibit the same fall in the stress as generated in the pane of glass, after an initial rise, described as a function of time, as instantly claimed. It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a prima facie case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The **prima facie** case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

Regarding claims 8 and 17, it is expected and inherent that since the vehicular glazing panel of Pereira et al. is the same as the instantly claimed vehicular glazing panel, that it will exhibit the same stress fault wherein, the stress fault manifests itself as a structural defect in the interface between the solder and the first electrically conductive component. See *In Re Best* as applied above.

Claims 1-2, 4, 8, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Sanada et al. (US 6,136,230).

Regarding claims 1, 2, and 11, Sanada et al. teach an automobile window having an antifogging property, wherein an electrode circuit is formed on a glass substrate, and a lead free solder is used to connect a lead terminal to the electrode/conductor. The lead free solder comprises tin as a primary component, and at least one metal of Bismuth, Indium, and antimony (col. 1, lines 1-30). Bismuth, Indium, and Antimony, are taught to be stress modifiers by the applicant. Sanada et al. do not teach that the mechanical stress modifier inhibits the occurrence of a stress fault in the pane of glass in the region of the solder; however, it is expected and inherent that since the vehicular glazing panel of Sanada et al. is the same as the instantly claimed vehicular glazing panel, that it will exhibit the same inhibition of the occurrence of a stress fault in the pane of glass in the region of the solder. It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a prima facie case of either anticipation or obviousness will be considered to have been established over functional limitations

Art Unit: 1794

that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The ***prima facie*** case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977)..

Regarding claim 4, it is expected and inherent that since the vehicular glazing panel of Sanada et al. is the same as the instantly claimed vehicular glazing panel, that it will exhibit the same fall in the stress as generated in the pane of glass, after an initial rise, described as a function of time, as instantly claimed. See *In Re Best* as applied above.

Regarding claims 8, it is expected and inherent that since the vehicular glazing panel of Sanada et al. is the same as the instantly claimed vehicular glazing panel, that it will exhibit the same stress fault wherein, the stress fault manifests itself as a structural defect in the interface between the solder and the first electrically conductive component. See *In Re Best* as applied above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-7 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pereira (US 6,253,988), as applied to claims 1-4, 8-13, and 17-19 above.

Regarding claims 5 and 14, as discussed above, Pereira teaches a lead free solder (col. 3, lines 17) in order to reduce damage to the glass, the solder comprises a composition of tin in an amount of less than 50%, and indium in an amount of more than 50 weight percent is indium (a stress modifier), Wherein the stress modifier is used to connect to electrically conductive components. Pereira is silent to the use of a fired ink band around the periphery of the pane of glass wherein the first electrically conductive component at least partially exists. However, it is well known and obvious in the art, as evidenced by the applicant on page 2, first paragraph), to place bus bars (first electrically conductive layers) "on a top of a band of fired, printed ink, which is preferably black and which extends around the periphery of the pane of glass. Such a band is known as an obscuration band." This is done in the art, as is known, in order to hide the conductive layers from view during vehicle operation.

Regarding claims 6, 7, 15 and 16, the applicant defines the glass as toughened and as a laminate, Pereira is silent to the use of toughened or one-ply laminates as the glass substrate, however, the applicant teaches that these substrate are obvious known alternatives in the art, and thus functional equivalents (instant specification, page 2 last paragraph to page 3, first paragraph). It is expected and inherent that since the vehicular glazing panel of Pereira et al. is the same or substantially the same as the instantly claimed vehicular glazing panel, that it will exhibit the same stress faults for the respective substrates. See *In Re Best* as applied above.

Claims 5-7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanada et al. (US 6,136,230) as applied to claims 1-2, 4, 8, and 11, above.

Regarding claim 5, Sanada et al. as described above, teach a vehicular window comprising two electrical components attached thereto, wherein the two electrical components are connected by a lead free solder comprising a stress modifier. Sanada et al. is silent to the use of a fired ink band around the periphery of the pane of glass wherein the first electrically conductive component at least partially exists. However, it is well known and obvious in the art, as evidenced by the applicant on page 2, first paragraph), to place bus bars (first electrically conductive layers) "on a top of a band of fired, printed ink, which is preferably black and which extends around the periphery of the pane of glass. Such a band is known as an obscuration band." This is done in the art, as is known, in order to hide the conductive layers from view during vehicle operation.

Regarding claims 6 and 7, the applicant defines the glass as toughened and as a laminate, Sanada is silent to the use of toughened or one-ply laminates as the glass substrate, however, the applicant teaches that these substrate are obvious known alternatives in the art, and thus functional equivalents (instant specification, page 2 second to last paragraph to page 3, first paragraph). It is expected and inherent that since the vehicular glazing panel of Sanada et al. is the same or substantially the same as the instantly claimed vehicular glazing panel, that it will exhibit the same stress faults for the respective substrates. See *In Re Best* as applied above.

Regarding claims 9 and 10, Sanada et al. do not teach the specific first and second electrically conductive components as instantly claimed, however, these instantly claimed electrically conductive components are known and obvious alternatives in the art as is evidenced by the applicant in the instant specification (page 2).

Claims 3 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanada et al. (US 6,136,230), as applied above, in view of Pereira (US 6,253,988), or Kitajima et al. (US 6,184,475) or Gonya et al. (US 5,368,814).

Regarding claims 4 and 12, Sanada et al. teach a vehicular glazing panel comprising : a pane of glass, a first electrically conductive component which exists on a surface of the pane of glass, and a second electrically conductive component which is joined to the first component by a lead free solder, wherein the lead free solder includes tin, and a mechanical stress modifier, such as antimony, bismuth or indium, which inhibits the occurrence of a stress fault in the pane of glass in the region of the solder. Sanada et al. are silent to the lead free solder including tin in an amount that is less than 90% by weight. Kitajima et al. teach connecting two electrical components on a substrate by a lead free solder comprising mixtures of indium, tin, and bismuth (Kitajima, col. 5, lines 30-45). Exemplary and comparative examples of the compositions of the solder of Kitajima are shown in Figure 1, wherein one example is Tin-42 wt %, Bi-58 wt %, and In-0 wt %, thus showing tin in an amount of less than 90 weight percent. Alternatively, Pereira et al. teach a low tin content solder for connecting

Art Unit: 1794

bus bars and electrical components in vehicular windows, wherein the solder comprises indium and tin as the main constituents, in an amounts of greater than 50 and less than 50 wt % respectively (Pereira, col. 1, lines 1-40). The low tin content is used in order to prevent cracks in automotive glass due to the dissimilar coefficients of expansion (Pereira, col. 3, lines 1-10). Alternatively, Gonya et al. teach a lead free tin bismuth solder alloy for joining circuitization lands and pads, comprising tin in an amount of 42-48 wt percent, and Bismuth in an amount of 48-56 wt percent (Gonya et al., col. 3, lines 60-col. 4, lines 15, also see col. 2, lines 55-60). All of these references, Kitajima et al., Pereira, and Gonya et al., teach lead free solders for connecting two electrically conductive components. It would have been obvious to a person having ordinary skill in the art at the time the present invention was made to use any of these three solder compositions as the solder composition in Sanada et al., as these solders have been shown to be functionally equivalent, to the lead free solder used by Sanada et al. Furthermore, Pereira et al. and others of skill in the art appreciate the low tin content in order to reduce cracking, in order to provide a higher quality vehicular glazing panel.

Regarding claim 13, it is expected and inherent that since the vehicular glazing panel of Sanada et al. is the same or substantially the same as the instantly claimed vehicular glazing panel, that it will exhibit the same fall in the stress as generated in the pane of glass, after an initial rise, described as a function of time, as instantly claimed. See *In Re Best* as applied above.

Regarding claim 14, Sanada is silent to the use of a fired ink band around the periphery of the pane of glass wherein the first electrically conductive component at

Art Unit: 1794

least partially exists. However, it is well known and obvious in the art, as evidenced by the applicant on page 2, first paragraph), to place bus bars (first electrically conductive layers) "on a top of a band of fired, printed ink, which is preferably black and which extends around the periphery of the pane of glass. Such a band is known as an obscuration band." This is done in the art, as is known, in order to hide the conductive layers from view during vehicle operation.

Regarding claims 15 and 16, the applicant defines the glass as toughened and as a laminate, Sanada is silent to the use of toughened or one-ply laminates as the glass substrate, however, the applicant teaches that these substrate are obvious known alternatives in the art, and thus functional equivalents (instant specification, page 2 second to last paragraph to page 3, first paragraph). It is expected and inherent that since the vehicular glazing panel of Sanada et al. is the same or substantially the same as the instantly claimed vehicular glazing panel, that it will exhibit the same stress faults for the respective substrates. See *In Re Best* as applied above.

Regarding claims 17, it is expected and inherent that since the vehicular glazing panel of Sanada et al. is the same or substantially the same as the instantly claimed vehicular glazing panel, that it will exhibit the same stress fault wherein, the stress fault manifests itself as a structural defect in the interface between the solder and the first electrically conductive component. See *In Re Best* as applied above.

Regarding claims 18 and 19, Sanada et al. do not teach the specific first and second electrically conductive components as instantly claimed, however, these instantly claimed electrically conductive components are known and obvious

Art Unit: 1794

alternatives in the art as is evidenced by the applicant in the instant specification (page 2).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The art of Shoop (Us, 4057,671), Postupack (US 3,771,211), (EP 1 199 289), were all considered to be relevant art in the case but not relied upon because of more pertinent art being applied above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN C. LANGMAN whose telephone number is (571)272-4811. The examiner can normally be reached on Mon-Thurs 6:30 am - 4:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCL

/Jonathan C Langman/

Examiner, Art Unit 1794

/Callie E. Shosho/

Supervisory Patent Examiner, Art Unit 1794